

State of Utah

Community Wildfire Preparedness Plan

For the Wildland – Urban Interface

Willard



05/23/2019



Department of Natural Resources
Division of Forestry, Fire and State Lands
1594 W North Temple, PO Box 145703, Salt Lake City, UT 84114-5703

Willard Wildfire Preparedness Plan

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Declaration and Concurrence Page

This page will then be signed after all cooperators have reviewed the plan and concur with its contents.

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Willard Wildfire Preparedness Plan

Declaration and Concurrence Page, continued

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Willard Wildfire Preparedness Plan

INTRODUCTION

Over 600 of Utah's communities have been classified as "at risk" of wildfire. The safety of the citizens of any community and the protection of private property and community infrastructure is a shared responsibility between the citizens; the owner, developer or association; and the local, county, state and federal governments. **The primary responsibility, however, remains with the local government and the citizen/owner.**

The purpose of wildfire preparedness planning is to...

- Motivate and empower local government, communities, and property owners to organize, plan, and take action on issues impacting the safety and resilience of values at risk
- Enhance levels of fire resilience and protection to the communities and infrastructure
- Identify the threat of wildland fires in the area
- Identify strategies to reduce the risks to structures, infrastructure and commerce in the community during a wildfire
- Identify wildfire hazards, education, and mitigation actions needed to reduce risk
- Transfer practical knowledge through collaboration between stakeholders toward common goals and objectives

Outcomes of wildfire preparedness planning...

- Facilitate organization of sustainable efforts to guide planning and implementation of actions:
1. Fire adapted communities 2. Resilient landscapes 3. Safe and effective fire response
- Improve community safety through:
 - ✓ Coordination and collaboration
 - ✓ Firefighter training
 - ✓ Fire prevention
 - ✓ Public awareness and education
 - ✓ Fuel modification
 - ✓ Development of long-term strategies
 - ✓ Improved fire response capabilities

RESOURCES

For resources to complete a wildfire preparedness plan for your community, consider organizations such as the following:

- ✓ Local / Primary fire protection provider
- ✓ Local Resource, Conservation and Development Districts
- ✓ Utah Division of Forestry, Fire and State Lands
- ✓ Utah State Fire Marshal (Dept. of Public Safety)
- ✓ Utah Division of Emergency Management
- ✓ Utah Living With Fire
- ✓ Local fire agencies
- ✓ Local emergency management services
- ✓ USDA Forest Service
- ✓ U.S. Department of Interior Agencies
- ✓ USDA Resource Conservation Service
- ✓ Utah Soil Conservation Districts

STATEMENT OF LIABILITY

The activities suggested by this template, associated checklist and guidance document, the assessments and recommendations of fire officials, and the plans and projects outlined by the community wildfire council, are made in good faith according to information available at this time. The Utah Division of Forestry, Fire and State Lands assumes no liability and makes no guarantees regarding the level of success users of this plan will experience. Wildfire still occurs, despite efforts to prevent it or contain it; the intention of all decisions and actions made under this plan is to reduce the potential for, and the consequences of, wildfire.

Last revised March 2016

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PLANNING OVERVIEW

Willard City opted into the Utah Cooperative Wildfire System in 2018. In the spring of 2019, Willard City initiated the Community Wildfire Preparedness Plan (CWPP) with assistance from Box Elder County, the Utah Division of Forestry, Fire and State Lands (FFSL), and Bear River Association of Governments (BRAG). A Wildfire Planning Council was formed to develop the CWPP. The Council included the Willard City Mayor, the Willard City Manager, the Willard City Fire Chief, Granite Construction, Staker Parson Materials & Construction, the Forest Service Ogden Ranger District, FFSL and BRAG. The council met over the spring to identify the threat of wildland fires in the Willard area, identified strategies to reduce the risk to structures, infrastructure and commerce in the city, and identified wildfire hazards, education, and mitigation actions to reduce the community's risk.

PLANNING PROCESS

04/11/2019 - Kick-Off Meeting

Willard City Council

- Meeting Description:
 - Introduction of the Utah Cooperative Wildfire System and Community Wildfire Preparedness Plan to the Willard City Council and general public
 - Identified members for Willard City's Wildfire Planning Council
- Attendance:
 - Willard City Council, community members, Willard City Fire Department, Willard City Police Department, Willard City Manager, BRAG

04/19/2019 - Community Description Meeting

Willard City Wildfire Planning Council

- Meeting Description:
 - Reviewed Willard City community description section of the CWPP
- Attendance:
 - Willard City Mayor, Willard City Manager, Willard City Fire Department, BRAG

05/03/2019 - Risk Assessment Review and Risk Reduction Strategies Meeting

Willard City Wildfire Planning Council

- Meeting Description:
 - Reviewed Willard City's risk assessment from Utah Wildfire Risk Assessment Portal (UWRAP) and developed a list of preparedness, prevention and mitigation strategies for the community
- Attendance:
 - Willard City Manager, Willard City Fire Department, Granite Construction, FFSL, BRAG

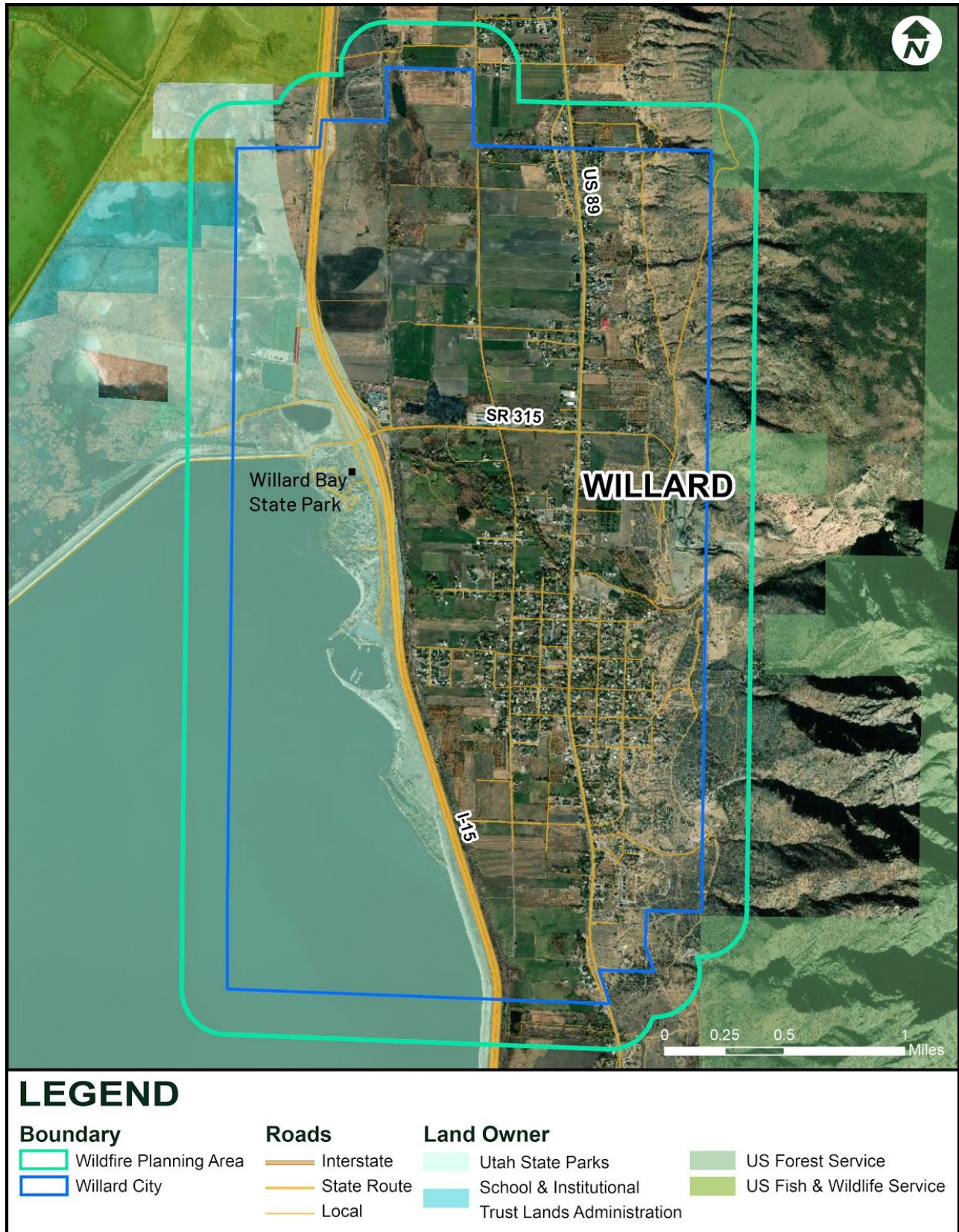
05/23/2019 - CWPP Review & Signing Meeting

Willard City Council

- Meeting Description:
 - Presented and adopted final CWPP by the City Council

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PLAN OVERVIEW MAP



Willard Wildfire Preparedness Plan

PARTNERSHIPS AND COLLABORATION

Willard City is located adjacent to the Uinta-Wasatch-Cache National Forest (Ogden Ranger District) to the east, Willard Bay State Park to the west, unincorporated South Willard to the south (Box Elder County), and Perry City to the north. A portion of Utah Division of Wildlife Resources lands is located southeast of the city.

Wildfire Risk

Willard City's highest wildfire risk areas were located east of U.S. Route 89 (see page 19). These areas were defined by the Wildfire Risk Index map as having high to extreme wildfire risk. The vegetation in those areas were identified as mostly pinyon-juniper and sage shrub/steppe. These dry climate shrubs and grass-shrubs present a moderate to very-high fuels load (see page 24-25). In 2017, the Murray Hill fire consumed 211 acres within that area.

Projects and Opportunities

Fuel Break Road, located along the city's east boundary, provides a significant firebreak between the National Forest and the city along the bench. The Road should be regularly maintained to reduce the spread of wildfires to the Willard City area. Willard City also enacts a summer time fireworks ban east of U.S. Route 89 to reduce wildfire risk during Utah's firework season. Future fuels treatment projects should target the bench as well as the Willow Creek watershed (Willard Canyon). The Willow Creek watershed is located east of Willard City in the National Forest. The area has been known to produce historic-sized debris flows after wildfires such as the one experienced in 1923. The Willow Creek watershed includes mixed forest and mountain mahogany that present a very high fuel load. The Forest Service is willing to work with Willard City on identified treatment areas that cross jurisdictional boundaries. Identified treatments would have to follow Forest Service planning processes.

Although not identified by the Risk Assessment maps due to the resolution of the spatial data, Willard City also has known areas of high fire risk located along Interstate 15 (see area fire history on page 14) and along Willard Bay State Park. In the past the City has completed fuels treatments along the State Park and will continue to look for opportunities to reduce fuel loads there. In addition, opportunities to reduce fuels along roadways can be accomplished through mechanical and chemical treatments.

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PART I: COMMUNITY DESCRIPTION

Community Legal Structure			
List the government entities associated with the community – city, town, unincorporated community, special service district, homeowner association(s), other.			
Organization	Contact Person	Phone Number	E-mail
Willard City	Kenneth Braegger (mayor)		willardcity@comcast.net
Willard Peak Ranches	Blaine Napoli	801-814-0459	blaine.napoli@gmail.com
Granite Ridge HOA	Eric Householder		
Deer Run HOA	Kirk Young	801-889-9977	

Population	
Approximate number of homes	660 ¹
Approximate number of lots	1,070 ²
Approximate number of commercial entities	17 ²
Approximate number of full-time residents	1,875 ¹
Approximated number of part-time residents	43,000 average monthly visitors to Willard Bay State Park (2018)
<i>Notes/comments:</i> ¹ 2017 American Factfinder, U.S. Census, ² Box Elder County GIS Department	

Restricting Covenants, Ordinances, etc.	
Source	Details
Willard City Ordinance	Annual fireworks ban (east of Highway 89) during summer
2015 International Fire Code	http://codes.iccsage.org/context/IFC2015
Utah Code 65A, FFSL	http://le.utah.gov/xcode/Title65A/65A.html

Access
Directions to community
From the south take U.S. Route 89 north. From the north take U.S. Route 89 or Interstate 15 and exit at 750 N/Utah 315 east towards U.S. Route 89.
All-weather access
U.S. Route 89.
Seasonal access
U.S. Route 89.

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Roads								
	None	Some	All	Adequate	Inadequate	% Pavement	% gravel	% dirt
Road signs present	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	85%	15%	
Will support normal flow of traffic	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>			
Are loop roads	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
Are dead-end roads	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
Turnaround space available at end of road for emergency equipment (based on turning radius listed in the guidance document)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>			
<i>Notes/comments:</i>								

Driveways						
	Adequate	Inadequate	No	Few	Most	All
Most driveways width and height clearance, road grades and vegetation appearance are...	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Individual homeowners have posted their name and address	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
<i>Notes/comments:</i> Posted names on homes are not required in community.						

Structures						
	None	Few	Some	Many	Most	All
Wood frame construction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Have wood decks or porches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Have wood, shake or shingle roofs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Are visible from the main subdivision road	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
<i>Notes/comments:</i> About 5 homes are not visible from road.						

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Bridges, Gate, Culverts, other			
	No	Some	All
Bridges support emergency equipment	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Gate provides easy access to emergency equipment	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Culverts are easily crossed by emergency equipment	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
<i>Notes/comments:</i> Bridges in community are either state or county owned.			

Utilities						
	Below ground	Above ground	Provided by	Phone number	% marked with a flag or other highly visible means	% utilized
Telephone service	<input checked="" type="radio"/>	<input checked="" type="radio"/>	Centurylink	865-650-7264		
Electrical service	<input checked="" type="radio"/>	<input checked="" type="radio"/>	Rocky Mountain Power	1-800-221-7070		
Are there homes utilizing propane?	<input type="radio"/>	<input checked="" type="radio"/>				
Are there homes utilizing natural gas?	<input checked="" type="radio"/>	<input checked="" type="radio"/>	Dominion Energy	1-800-767-1689		
<i>Notes/comments:</i> A few number of shops and homes use propane. One above ground natural gas line located at the mouth of Willard Canyon.						

List locations of propane tanks above ground:		
Owner	Address, lat/long, etc.	Size
Flying J Travel Center	600 W 750 N, Willard, UT 84340	
<i>Notes/comments:</i>		

Primary Water Sources			
Approximate % homes using central water system		99%	
Approximate %homes using individual wells		1%	
Approximate % homes having additional private water source		-	
Water provided by	Willard Water Company	Phone	435-734-9881
<i>Notes/comments:</i>			

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List locations of water sources:		
Owner	Address, lat/long, etc.	Accessible
Willard City	City fire hydrants	yes
Willard City	Willard Creek Debris Basin Park and Pathway, 135 N 100 E, Willard	yes
Bureau of Reclamation	Ogden Brigham Canal, adjacent to Fire Break Rd	yes
Dip sites	Multiple locations near Willard Canyon	yes
<i>Notes/comments:</i>		

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PART II: RISK ASSESSMENT

Estimated Values at Risk

Provide an approximation of the estimated current values of residential and commercial property in the area. The County Assessor should be able to assist with this information.

Estimated values at risk of commercial and residential property	\$ 136,932,067
Year	2019

Natural Resources at Risk

Describe the natural resources at risk in the area, such as watershed, forest products, wildlife, recreation tourism, etc.

- Willard Creek Debris Basin Park and Pathway
- Wellheads and springs located in Willard Canyon
- Willard Bay State Park
- Willard Creek watershed
- Willow Creek Park

Community at Risk Analysis

The following information is based on the Communities at Risk (CAR) list that was developed cooperatively at the local and state level to assist land management agencies and other stakeholders in determining the scope of the WUI challenge and to monitor progress in mitigating the hazards in these areas. This information is updated annually through the interagency fuel groups and can be found at forestry.utah.gov.

Fire Occurrence: Number of fires in the area for the last 10 years 2009 to 2018			
<input type="radio"/>	0	No Risk	
<input type="radio"/>	1	Moderate	0 to 1 fire/township
<input checked="" type="radio"/>	2	High	2 to 14 fires/township
<input type="radio"/>	3	Extreme	Greater than 14 fires/township
Rating	2	High	

Area Fire History

Month/Year of fire	Ignition point	Ignition source	Acres burned
07/2009	Dike		0.35
08/2009	I-15 MP 355		0.25
06/2010	I-15 MP 357		1
07/2010	Christenson		2

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Area Fire History (con't)			
Month/Year of fire	Ignition point	Ignition source	Acres burned
07/2010	Park Fire		0.33
07/2010	358		0.25
10/2010	356 #2		0.25
08/2012	Mower Fire		0.29
06/2017	Murray Hill	Power line spark	211

Fuel Hazard: Assess the fuel conditions of the landscape and surrounding the community			
<input type="radio"/>	0	No Risk	
<input type="radio"/>	1	Moderate	Moderate to low to control, fire intensities would generally cause moderate damage to resources based on slope, wind speed and fuel. Vegetation Types: Ponderosa pine/mountain shrub, grassland, alpine, dry meadow, desert grassland, Ponderosa pine, Aspen and mountain riparian.
<input checked="" type="radio"/>	2	High	High resistance to control, high to moderate intensity resulting in high to moderate damage to resources depending on slope, rate of spread, wind speed and fuel loading. Vegetation Type: Maple, mountain shrubs, sagebrush, sagebrush/perennial grass, salt desert scrub, Black Brush, Creosote and Greasewood.
<input type="radio"/>	3	Extreme	High resistance to control, extreme intensity level resulting in almost complete combustion of vegetation and possible damage to soils and seed sources depending on slopes, wind speed, rate of spread and fuel loading.
Rating	2	High	

Values Protected: Evaluate the human and economic values associated with the community or landscape, such as homes, businesses and community infrastructure.			
<input type="radio"/>	0	No Risk	
<input type="radio"/>	1	Moderate	Secondary Development: This would be seasonal or secondary housing and recreational facilities.
<input type="radio"/>	2	High	Primary Development: This would include primary residential housing, commercial and business areas.
<input checked="" type="radio"/>	3	Extreme	Community infrastructure and community support: This would be water systems, utilities, transportation systems, critical care facilities, schools manufacturing and industrial sites. It may also include valuable commercial timber stands, municipal watersheds and areas of high historical, cultural and/or spiritual significance which support and/or are critical to the well-being of the community.
Rating	3	Extreme	

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Insurance Rating	
ISO Fire Insurance Rating:	5

Protection Capabilities: Insurance Services Organization (ISO) rating for the community will serve as an overall indicator of the protection capabilities.			
<input type="radio"/>	1	Moderate	ISO Rating of 6 or lower
<input checked="" type="radio"/>	2	High	ISO Rating 7 to 9
<input type="radio"/>	3	Extreme	ISO Rating 10
Rating	2	High	

Fire Occurrence	Fuel Hazard	Values Protected	Fire Protection Capabilities	Overall Rating
2	2	3	2	9
Total: 4-7 Moderate, 8-11 High, 12 Extreme				HIGH

Wildfire Risk Assessment

The following information is based on the Utah Wildfire Risk Assessment Portal (UWRAP) and Area of Interest (AOI) Summary Reporting Tool. Reports are generated using a set of predefined map products developed by the West Wide Wildfire Risk Assessment (2012) project. The UWRAP provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation and prevention planning in Utah.

Note: All maps were created at 30 meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. With care, it can be used for site specific analysis as well as regional, county or local protection mitigation or prevention planning.

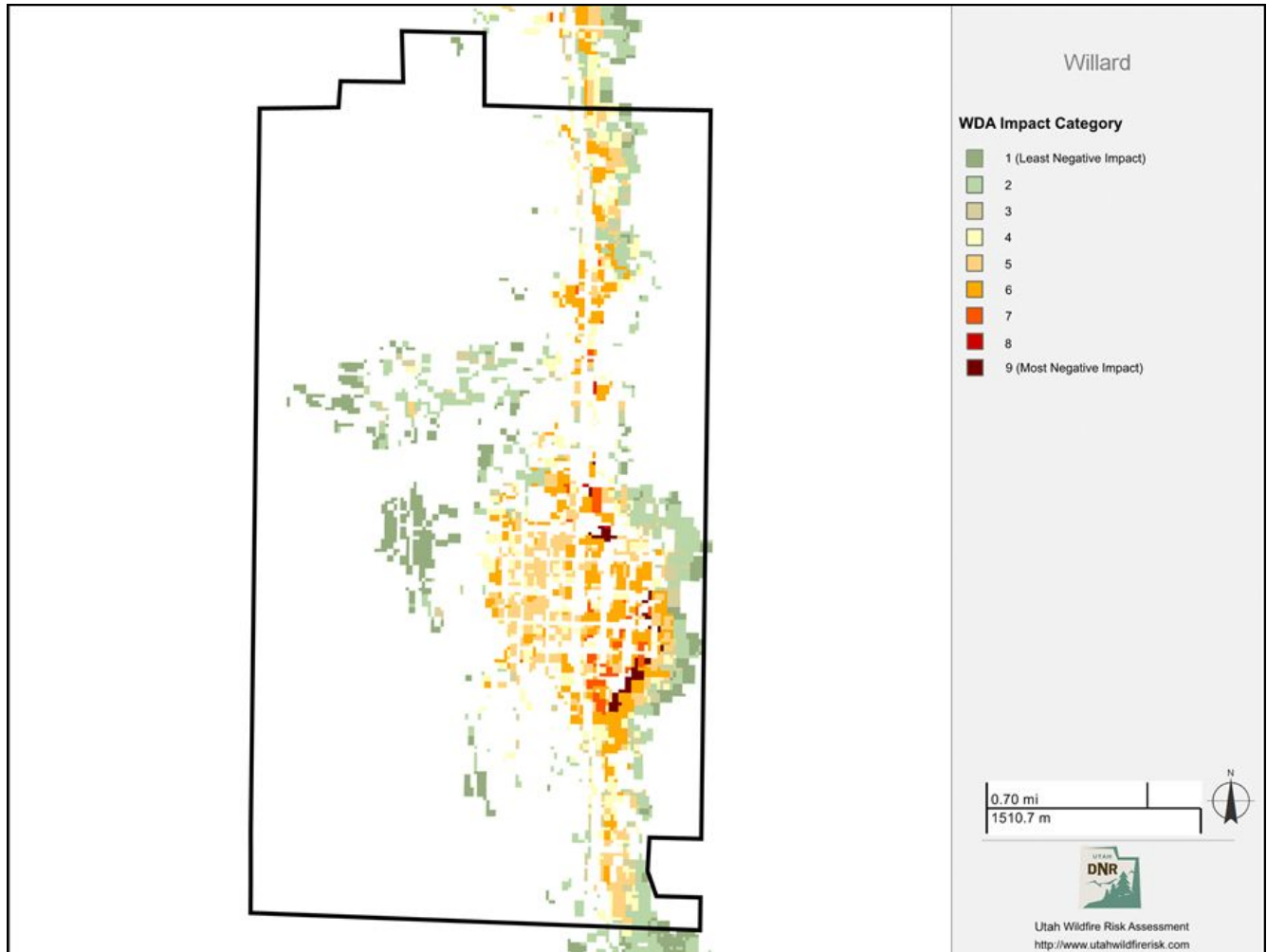
Wildland Development Area (WUI) Impacts

The Wildland Development Area (WUI) Impacts layer is a rating of the potential impact of a wildfire on people and their property. The key input is housing density (houses per acre) consistent with Federal Register National standards for this topic. The location of people living in the Wildland Development Areas is essential for defining potential wildfire impacts to people and property.

The Wildland Development Area Impact for an area is derived using a Response Function modeling approach. Response functions are a method of assigning a net change in the value to a resource or asset based on susceptibility to fire at different fire intensity levels as measured by fire behavior parameters such as flame length. To calculate the Wildland Development Area

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Impact Response Function Score, the Wildland Development Area housing density data was combined with flame length data and Response Functions assignments to represent potential impacts. The Response Function Score for a combination of Wildland Development Area category and flame length category were defined by a team of subject matter experts. By using flame length and Wildland Development Area housing density data, it is possible to determine where the greatest potential impact to property and people is likely to occur.



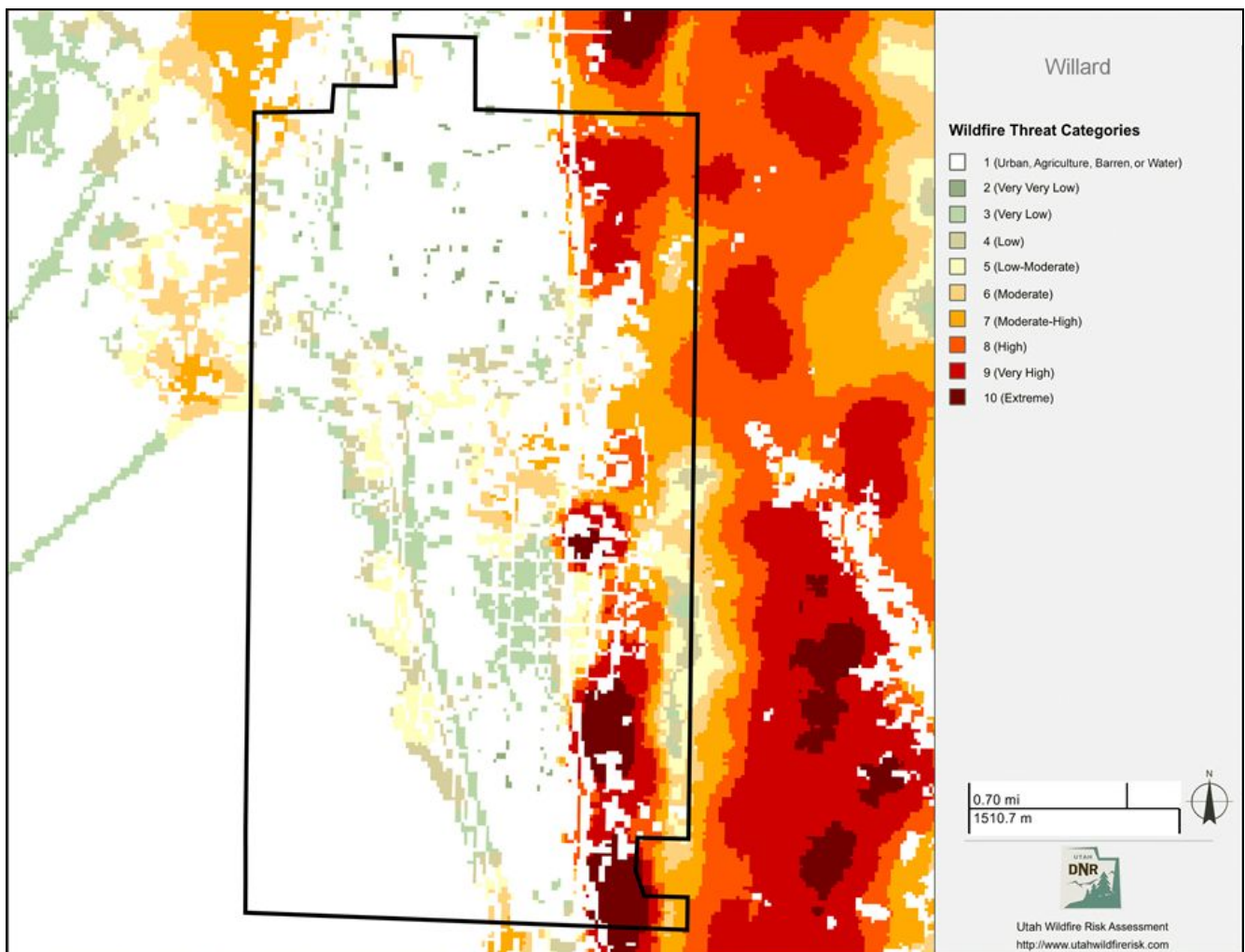
The Wildland Development Area Impact scores range from 1 (least negative impact) to 9 (most negative impact). Areas with the highest impact from a wildfire were located along the southeast section of Willard City.

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Wildfire Threat

Wildfire Threat is a number that is closely related to the likelihood of an acre burning and is displayed as the Wildfire Threat Index. The Fire Threat Index is derived from historical fire occurrence, landscape characteristics including surface fuels and canopy fuels, percentile weather derived from historical weather observations and terrain conditions. These inputs are combined using analysis techniques based on established fire science to develop resultant fire behavior.

The Fire Threat Index (FTI) combines the probability of an acre igniting (Fire Occurrence, see page 21), the expected final fire size based on rate of spread in four weather percentile categories and the effectiveness of fire suppression resources. Since all areas in Utah have FTI calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high threat area in East Utah is equivalent to a high threat area in West Utah.



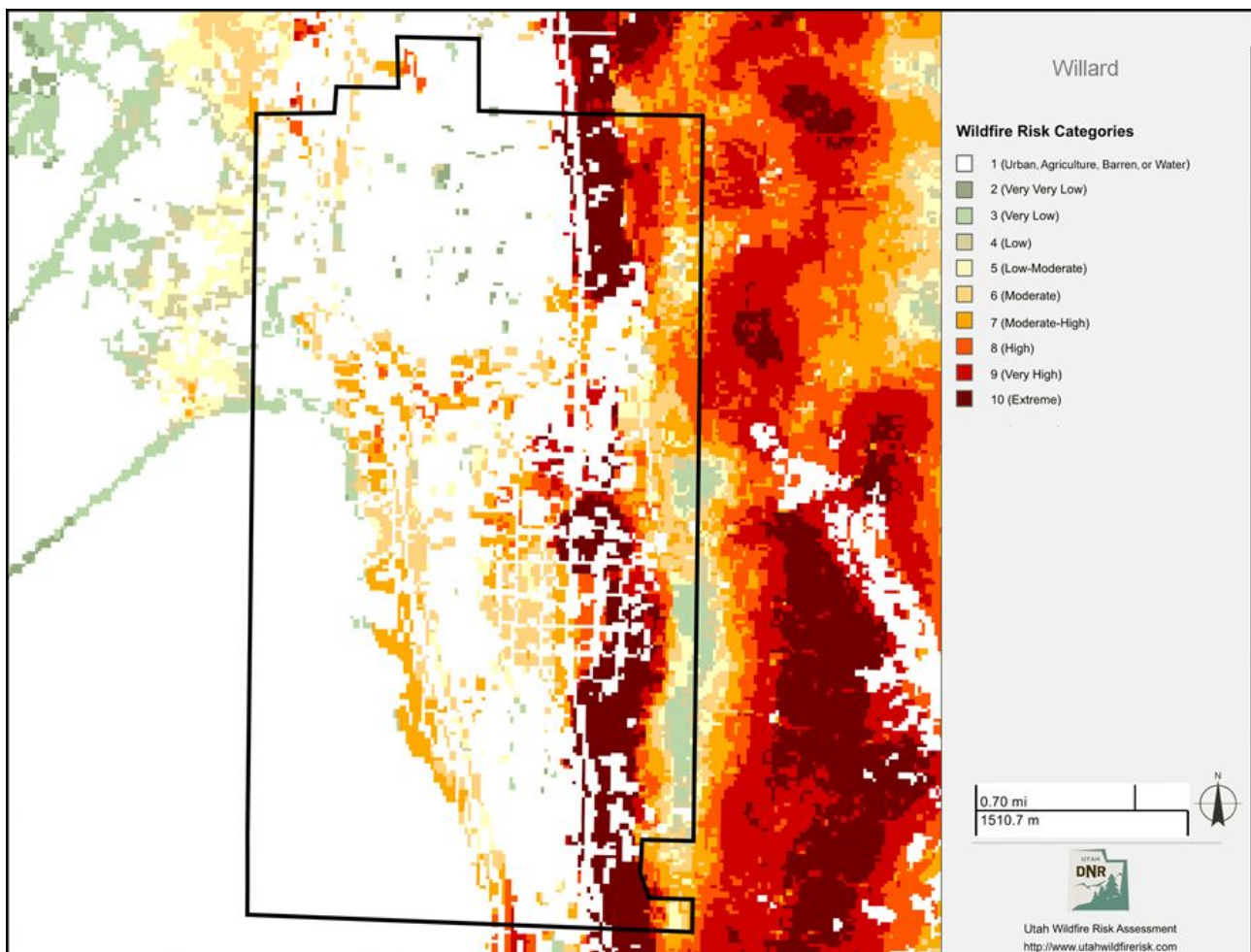
The Wildfire Threat Index is measured from 2 (very, very low threat) to 10 (extreme threat). In Willard City, areas along the bench on the southeast and northeast side of town present the highest wildfire threat.

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Wildfire Risk

Wildfire Risk represents the possibility of loss or harm occurring from a wildfire and is displayed as the Wildfire Risk Index. Wildfire Risk combines the likelihood of a fire occurring (Wildfire Threat, see page 18), with those areas of most concern that are adversely impacted by fire (Fire Effects), to derive a single overall measure called the Wildfire Risk Index. It identifies areas with the greatest potential impacts from a wildfire considering the likelihood of an area burning and the impacts to values and assets aggregated together. Since all areas in Utah have the Wildfire Risk Index calculated consistently, it allows for comparison and ordination of areas across the entire state.

Fire Effects are comprised of two inputs: Value Impacts and Suppression Difficulty (see page 23). The Fire Effects Index identifies those areas that have important values that could be adversely impacted by a wildfire and also might be in areas where fire suppression activities are difficult. The Values Impacted includes the Wildland Development Areas (WUI), Forest Assets, Riparian Assets, Drinking Water Importance Areas (watersheds) and Infrastructure Assets.



Wildfire risk is categorized from 2 (very, very low risk) to 10 (extreme risk). The east side of Willard, from U.S. Route 89 to the eastern boundary, has the highest wildfire risk in the city.

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Wildfire Risk Assessment Summary

Number and percentage of acres in low, moderate and high Wildfire Risk, Threat and WUI Impact categories for Willard City. Most of Willard City falls into the low category (over 60%).

	Wildfire Risk	WUI Impacts	Wildfire Threat
Low (1-4)	3,257 / 71.4%	460 / 61.2%	3,499 / 76.7%
Moderate (5-7)	724 / 15.9%	280 / 37.1%	569 / 12.5%
High (8-10)	577 / 12.7%	13 / 1.7%	492 / 10.8%

Other Wildfire Risk Assessment Maps

The following section (pages 21-24) contains other risk assessment maps derived from the UWRAP that can provide insight into where Willard City can improve its wildfire preparedness, prevention and mitigation.

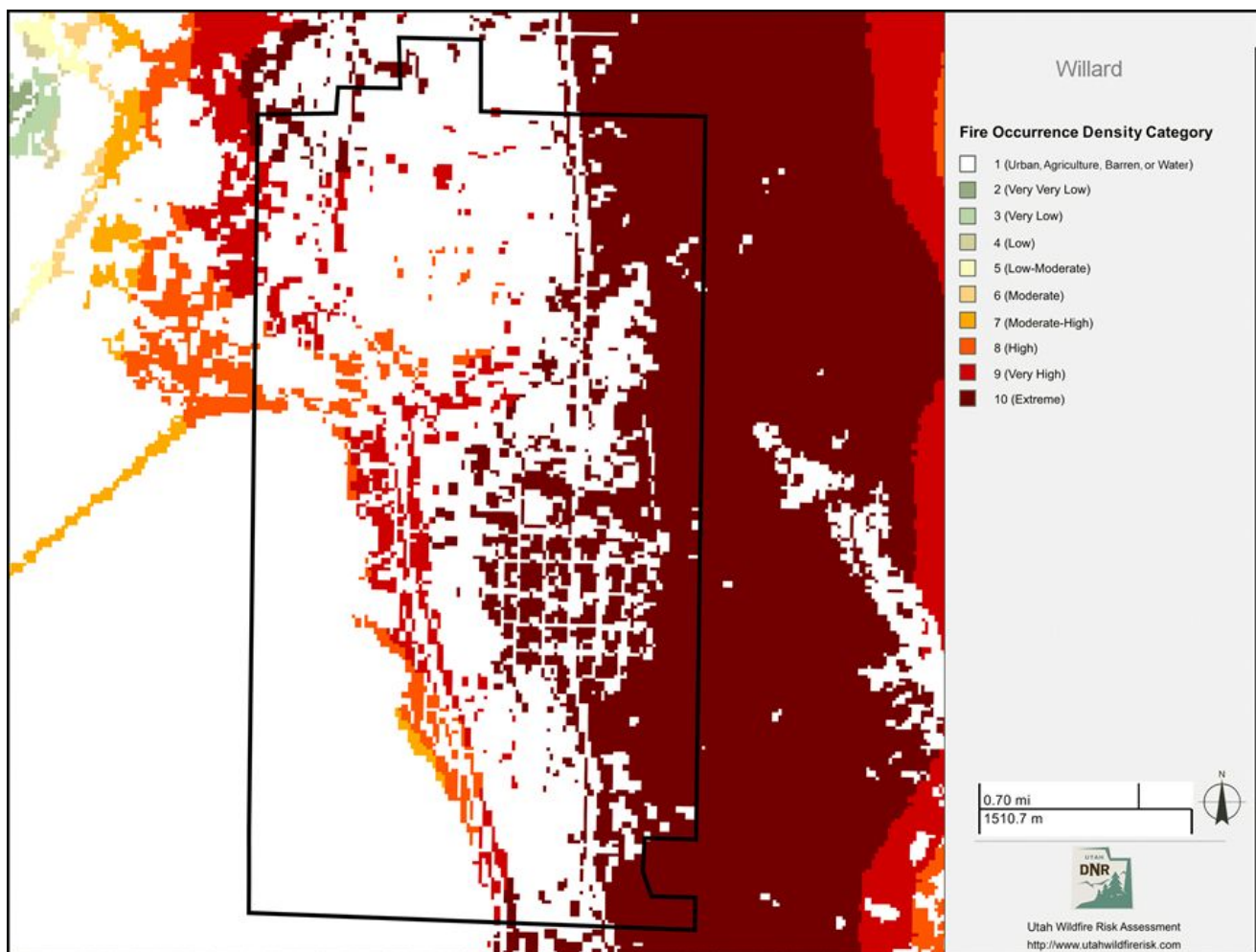
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Fire Occurrence Density

The Fire Occurrence ignition density map represents the likelihood of a wildfire igniting based on historical ignition patterns. Occurrence is derived by modeling historic wildfire ignition locations to create an ignition density map. The ignition rate is measured in the number of fires per 1,000 acres per year. Caution is important here to NOT view this as a probability but as an ignition rate or frequency.

Historic fire report data for the period 1999-2008 was used for ignitions with a defined location (latitude and longitude). Historic fires that did not have a specific location from 2004-2009 were assigned to a postal zip code. Together these fires were used to create the ignition density map for Utah. The compiled fire occurrence database was examined to remove duplicate records. The database was then modeled to create a fire occurrence density map reflecting historical fire ignition rates.

In particular, with many of Utah's fires being human-caused, there is a repeatable spatial pattern of fire ignitions over time. This pattern identifies areas where wildfires are most likely to ignite and fire prevention efforts can be planned accordingly.



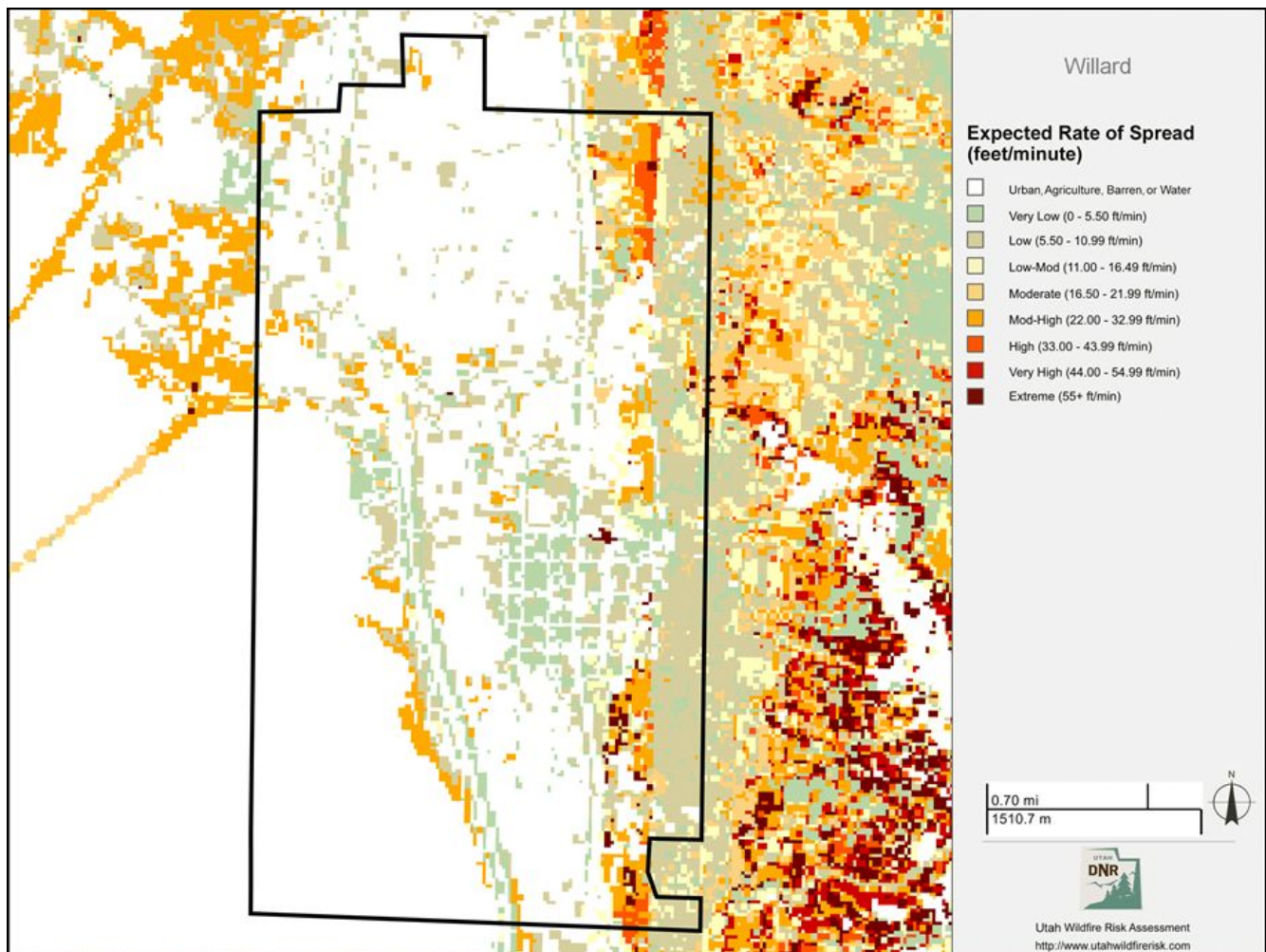
The Fire Occurrence Density map is broken into nine categories from very, very low (2) to extreme (10). All of Willard City has a rating of 7 (moderate-high) or above. Meaning the entire city has a moderate-high to extreme wildfire frequency.

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Rate of Spread

The Expected Rate of Spread is the expected rate of spread based on a weighted average of the proportion of fires that occur under each of the four percentile weather categories. It can be viewed as the average rate of spread one might expect in an area. Rate of spread is defined by the relative movement of a fire in a horizontal dimension. It is an indicator of how quickly a fire is spreading or moving horizontally. Rate of spread is expressed in feet per minute.

Rate of Spread is a fire behavior output, which is influenced by three environmental factors; fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each Weather Influence Zone in Utah. A Weather Influence Zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 10 Weather Influence Zones in Utah.

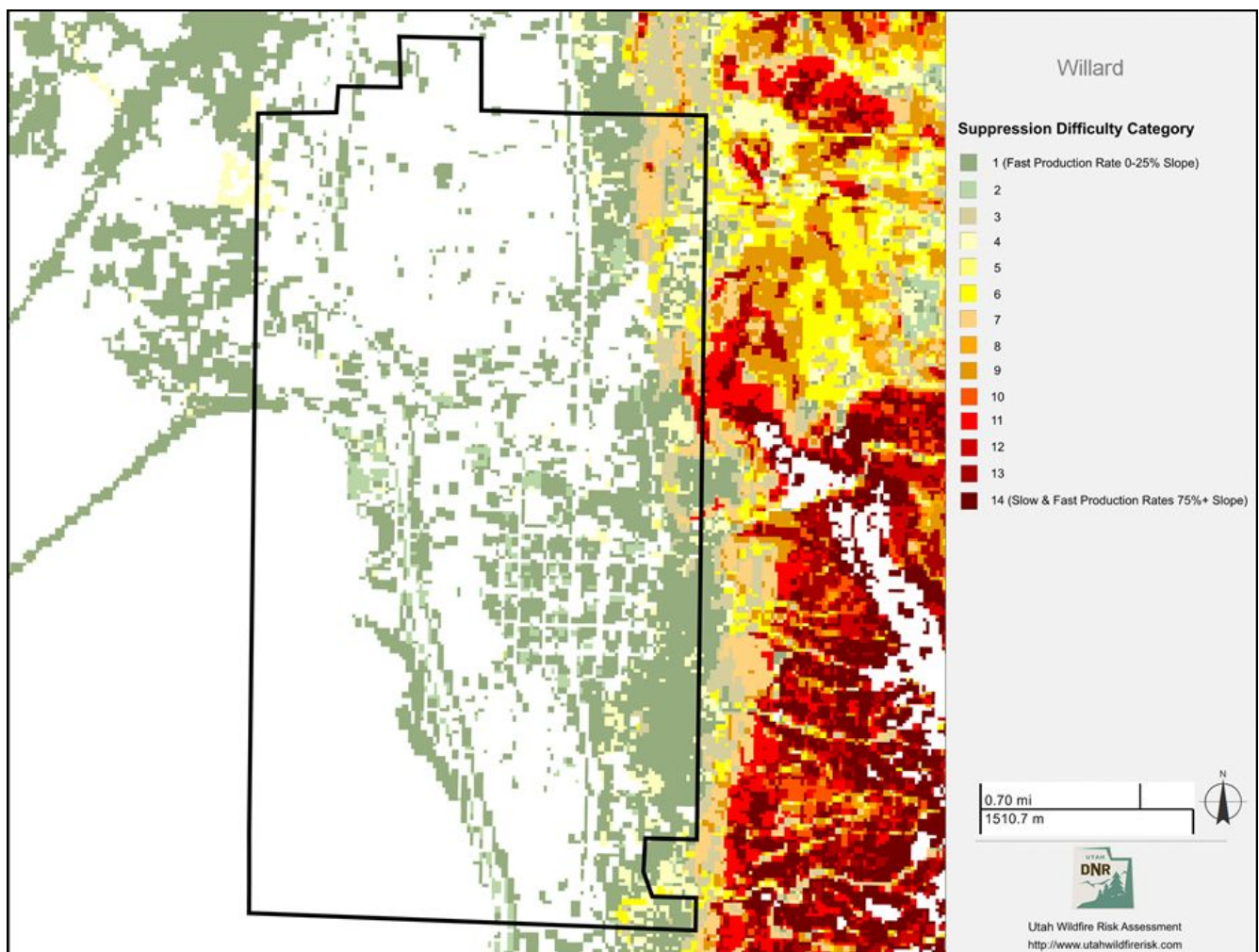


The Rate of Spread was categorized into nine categories from very low to extreme. In general the rate of spread in Willard City was very low to low-moderate. Areas with the highest spread rates were located in the southeast corner of the city.

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Suppression Difficulty

The Suppression Difficulty data layer reflects the difficulty or relative cost to suppress a fire given the terrain and vegetation conditions. This layer is an overall index that combines the slope steepness and the fuel type characterization to identify areas where it would be difficult or costly to suppress a fire due to the underlying terrain and vegetation. The rating was calculated based on the fireline production rates for hand crews and engines with modifications for slope, as documented in the NWCG Fireline Handbook 3, PMS 401-1 (NWCG 2004). The surface fuel models in Utah were grouped into three categories: slow, medium and fast fireline production. Fireline production capability on five slope classes was used as the basic reference to obtain the Suppression Difficulty Score. To remain consistent with the Value Impacted Scores output, a range of difficulty was assigned.



The Suppression Difficulty map is categorized into nine groups, Fast production rate with 0-25% slope (1) to Slow and fast production rates with a slope of 75% or greater (14). The majority of Willard (70%) has a suppression difficulty of 1 meaning Willard has a low suppression difficulty.

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Surface Fuels

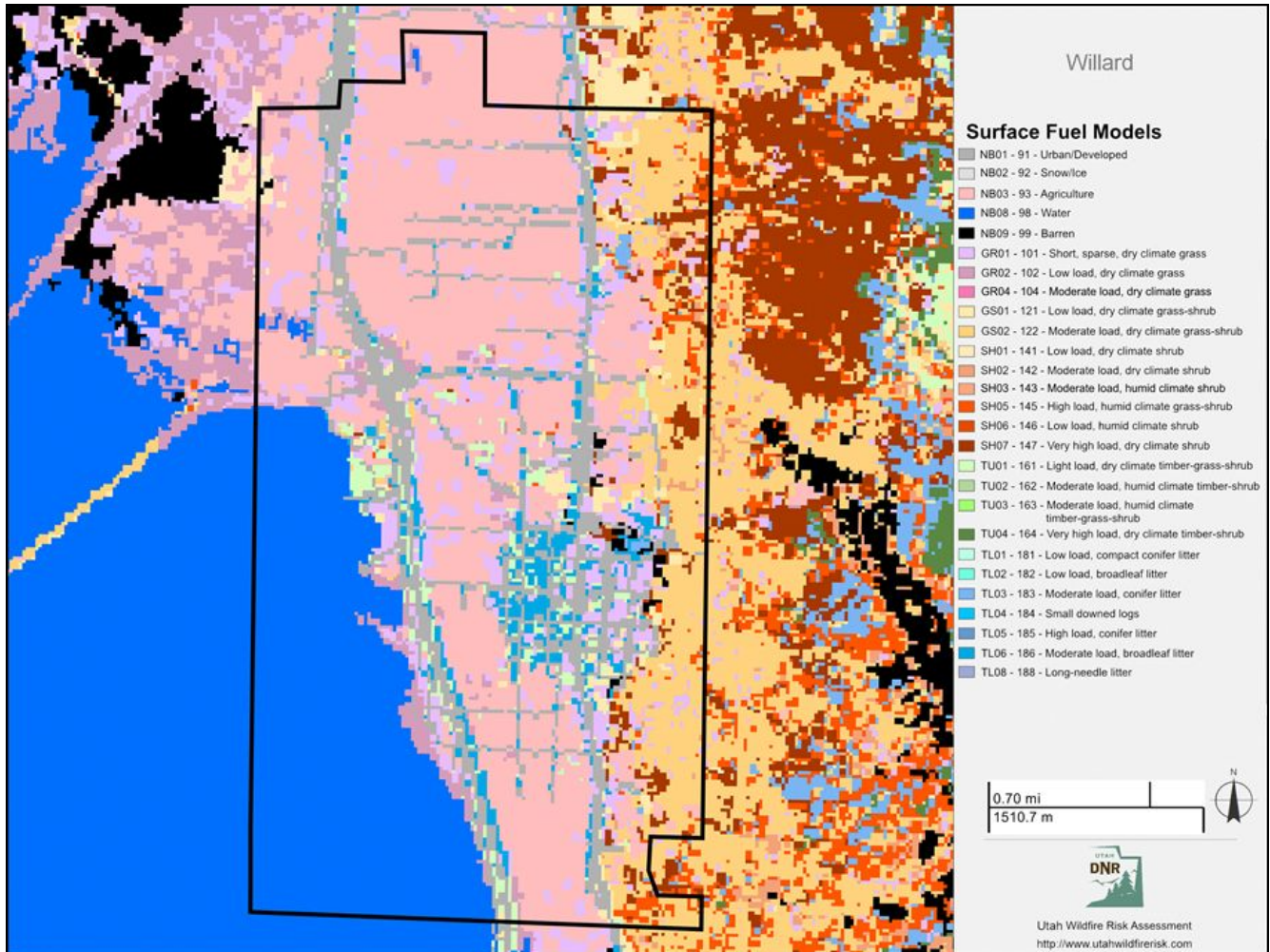
Surface fuels are defined by fire behavior fuel models (Scott & Burgan, 2005). A fuel model contains the parameters required by the surface fire spread model to compute surface fire behavior characteristics, including rate of spread, flame length, fireline intensity and other fire behavior metrics. As the name might suggest, surface fuels account only for surface fire potential and surface fuels are generally defined to be less than six feet in height off of the ground. Canopy fire potential is computed through a separate but linked process. The Utah WRA accounts for both surface and canopy fire potential in the fire behavior outputs. However, only surface fuels are shown in this Area of Interest Summary Report.

Surface fuels typically are categorized into one of six primary fuel types based on the primary carrier of the surface fire: 1) Grass, 2) Grass/Shrub, 3) Shrub, 4) Timber/Understory, 5) Timber Litter and 6) Slash. These surface fuel models provide the input parameters needed to compute surface fire behavior. Two standard fire behavior fuel model sets have been published.

The Fire Behavior Prediction System 1982 Fuel Model Set (Anderson, 1982) contains 13 fuel models, and the Fire Behavior Prediction System 2005 Fuel Model Set (Scott & Burgan, 2005) contains 40 fuel models. The Utah WRA uses fuel models from the 2005 Fire Behavior Prediction System Fuel Model Set.

The LANDFIRE Program 2008 version of data products was used to compile the surface fuels data for the West Wide Risk Assessment (2012) and the Utah Wildfire Risk Assessment. This reflects data through 2008.

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The majority of surface fuels in Willard City were agriculture (33.8%), water (21.4%), and urban/developed (12.1%) and were not considered a fuel load. The highest fuel loads in the city were moderate load, dry climate grass-shrub (10.3%) located along the eastern border, and short, sparse, dry climate grass (8.4%) located throughout the city.

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Past Wildfire Accomplishments in Willard City

Prevention	<ul style="list-style-type: none">• Fire prevention education to homeowners• Open house fire prevention hosted by the Fire Department• Facebook information on wildfire conditions
Preparedness	<ul style="list-style-type: none">• Constructed the Willard Creek Debris Basin Park and Pathway• Annual fire department training• Annual equipment checks and upgrades• Developed dip sites southeast of Willard City Cemetery
Mitigation	<ul style="list-style-type: none">• Developed fire breaks east of Willow Creek Park• Reduce tree fuel loads next to Willard Creek Debris Basin Park and Pathway• Provided control burns as needed• Spray weeds and grass annually• Firework restrictions (summer)
Maintenance	<ul style="list-style-type: none">• Up kept hydrant to ensure they are clear and visible

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PART III: RISK REDUCTION GOALS/ ACTIONS

Goals of Plan: Provide a brief statement under the Prevention, Preparedness, Mitigation and Maintenance goals. These should align with the pillars of the National Cohesive Strategy and the Utah Catastrophic Wildfire Reduction Strategy (1. Resilient Landscapes 2. Fire Adapted Communities 3. Wildfire Response).

Identification of Actions: Provide detailed project information. These projects/actions can be mapped/tracked in the Utah WRA portal and should be consistent with a Cooperative Agreement in compliance with the Wildfire Policy if applicable.

GOAL A: PREVENTION – Activities directed at reducing the occurrence of fires, including public education, law enforcement, and personal contact.

Goal A.1 – Address ways to reduce wildfire occurrence (human-caused fires)			
Action(s):	Timeline:	Community Lead:	Priority:
Install wildfire danger signs along accesses to National Forest	2019	Willard City Fire Dept.	High
Host fire prevention week and open house	Annually	Willard City Fire Dept.	High
Provide fire patrols for controlled burns	Continuous	Willard City Fire Dept.	High
Enforce areas of fire restrictions (when enacted)	Continuous	Willard City Fire Dept.	High
<i>Notes, updates, and monitoring</i>			

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GOAL B: PREPAREDNESS – Activities that lead to a state of response readiness to contain the effects of wildfire to minimize loss of life, injury, and damage to property. Including access to home/community, combustibility of homes/structures and creating survivable space.

Goal B.1 – Evaluate, upgrade and maintain community wildfire preparation

Action(s):	Timeline:	Community Lead:	Priority:
Develop agreements with private landowners	As needed	FFSL	High
Provide fire training	Continuous	Willard City Fire Dept.	High
Review wildfire evacuation plan (emergency management plan)	Annually	Willard City Fire Dept., Box Elder County	Low
<i>Notes, updates, and monitoring</i>			

Goal B.2 – Educate community members to prepare for and respond to wildfire.

Action(s):	Timeline:	Community Lead:	Priority:
Visit with elementary school to educate children	Annually	Willard City Fire Dept.	High
Work with the Community Emergency Response Team (CERT) to help out with evacuations and restricting access during wildfire events	Continuous	Willard City Fire Dept., Willard City CERT	Low
<i>Notes, updates, and monitoring</i>			

Goal B.3 – Address identified regulatory issues impacting community wildfire prevention and response needs.

Action(s):	Timeline:	Community Lead:	Priority:
Develop a wildfire risk overlay	2019	Willard City Manager	Moderate
<i>Notes, updates, and monitoring</i>			

Goal B.4 – Evaluate response facilities and equipment.

Action(s):	Timeline:	Community Lead:	Priority:
Upgrade and maintain personal protective equipment	Continuous	Willard City Fire Dept.	High
Upgrade and maintain radios	Continuous	Willard City Fire Dept.	High
Maintain portable dip sites	Continuous	Willard City Fire Dept.	High
<i>Notes, updates, and monitoring</i>			

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GOAL C: MITIGATION – Actions that are implemented to reduce or eliminate risks to persons, property or natural resources including fuel treatments and reduction.

Goal C.1 – Decrease fuels within the community to reduce wildfire impact in and around the community.			
Action(s):	Timeline:	Community Lead:	Priority:
Remove fuels (trees) near Willard Creek Debris Basin Park and Pathway	Annually as identified	Willard Fire Dept.	High
Vegetation reduction as needed	Continuous	Willard Fire Dept.	High
Prescribed fire treatments as needed	Continuous	Willard Fire Dept.	High
<i>Notes, updates, and monitoring</i>			

Goal C.2 – Work with local, state and federal fire officials to decrease fuels on private and adjacent public lands to reduce wildfire intensity and impact in and around the community.			
Action(s):	Timeline:	Community Lead:	Priority:
Prescribed fire treatments at Willard Bay State Park	Annually	Willard Fire Dept.	High
Regulate burn permits	Continuous	Willard Fire Dept.	High
Reduce fuels in Willard Creek watershed		Willard Fire Dept.	Moderate
<i>Notes, updates, and monitoring</i>			

GOAL D: MAINTENANCE – the process of preserving actions that have occurred including fuel treatments and reduction.

Goal D.1 - Regularly evaluate, update and maintain project commitments.			
Action(s):	Timeline:	Community Lead:	Priority:
Review and update CWPP	Biannually	Willard Fire Dept.	High
<i>Notes and updates</i>			

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PART IV: CONTACTS

The contacts in this part identify community resources that can be used to complete the goals of the plan.

Wildfire Planning Committee Member List		
Name	Affiliation	E-mail
Ken Braegger	Willard City	kennethbraegger@gmail.com
Bryce Wheelwright	Willard City	brycewillardcity@gmail.com
Van Mund	Willard City	willardfiredept@comcast.net
Brad Sweet	Granite Construction	
Bryan Jorgensen	Staker Parson Materials & Construction	bryan.jorgensen@stakerparson.com
Corey Barton	Box Elder County	cbarton@boxeldercounty.org
Dusty Richards	Utah Division of Forestry, Fire & State Lands	dustinrichards@utah.gov
Jeff Sanocki	Forest Service - Ogden Ranger District	jeff.sanocki@usda.gov
Sean Harwood	Forest Service - Ogden Ranger District	sharwood@fs.fed.us

Commercial Entities			
Organization	Contact Person	Phone Number	E-mail
Granite Construction	Brad Sweet		brad.sweet@gcinc.com
Staker Parson Materials & Construction	Bryan Jorgensen		bryan.jorgensen@stakerparson.com
Ormond Construction	Dave Ormond	435-723-3531	
Braegger Construction	Ken Braegger		kennethbraegger@gmail.com

Formal Associations			
Organization	Contact Person	Phone Number	E-mail
Willard Peak Ranches	Blaine Napoli	801-814-0459	blaine.napoli@gmail.com
Granite Ridge HOA	Eric Householder		
Deer Run HOA	Kirk Young	801-889-9977	

Media Support			
Organization	Contact Person	Phone Number	E-mail
Willard City	Willard City PIO		willardcity@comcast.net
Box Elder County	Mitch Zundel	435-734-3331	mzundel@boxeldercounty.org

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Schools				
School	Contact Person	Phone Number	E-mail	Address
Willard Elementary	Catherine Allen	435-734-4934	catherine.allen@besd.net	40 W 50 S Willard

Transportation			
Organization	Contact Person	Phone Number	E-mail
Utah Transit Authority (UTA)	UTA Police	801-287-3937	

Private Equipment Capabilities			
Type of Equipment	Contact Person	Phone Number	E-mail
Private landowners as needed			

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APPENDIX A

PARTICIPATION COMMITMENT ACTIONS

For Local Governments

(Suggested actions, not a conclusive or final list. Other actions will be added as appropriate)



WILDFIRE PREVENTION

Activities directed at reducing the number of human-caused fires. **(Goal: Fire-Adapted Communities)**

- Costs of wildfire prevention campaigns
- Costs of wildfire mitigation educational materials (defensible space, firewise landscaping etc)
- Costs of implementing Ready, Set, GO! program
- Law enforcement patrols to enforce fire restrictions and/or burn permit violations
- Volunteer hours for meetings and events that promote, plan or implement CWPPs
- Costs of wildfire prevention media campaigns/ PSAs
- Costs of designing, producing and installing community awareness and/or wildfire prevention boards/displays

WILDFIRE MITIGATION (50% min)

Actions taken to reduce or eliminate risks to persons, property or natural resources. **(Goal: Resilient Landscapes)**

- Costs of equipment and labor (including volunteer hours) used to reduce hazardous fuels in accordance with CWPP (*i.e. fuel breaks, prescribed fire, timber harvests and certain activities that support grazing*)
- Costs or volunteer value of equipment and labor toward ongoing maintenance of existing CWPP fuel reduction projects
- Volunteer hours toward removing hazardous fuels from community common areas identified in CWPPs
- Volunteer hours toward improving ingress/egress in community common areas identified in CWPPs
- Costs associated with community fuel reduction events (*i.e. chipper days*)
- Costs of vegetation management equipment

WILDFIRE PREPAREDNESS (25% max.)

Activities that lead to a safe, efficient and capable wildfire suppression response **(Goal: Strong Initial Attack Capability)**

- Costs of improving wildland fire apparatus, communication or support
- Costs of improving or creating additional ingress/egress into Wildland Urban Interface (WUI) areas identified in CWPPs
- Costs of improving or increasing firefighter access to secondary water systems through hydrants, tanks or drafting sites
- Actual costs for providing wildfire suppression training to fire department and/or emergency management personnel
- Volunteer hours spent in training for wildland fire suppression
- Costs of wildland-specific Personal Protective Equipment (PPE)
- Costs of producing and installing road signs and address markers (including evacuation routes) as part of a CWPP
- Costs of certifying bulldozer operators
- Costs associated with enforcement of WUI code
- Costs associated with installing/maintaining helicopter dip sites
- Costs of inspecting resident defensible space work to certify for individual tax incentives
- Costs of producing and/or updating city emergency response plans that address CWPPs
- Costs of land-use planning that support objectives of CWPPs
- Costs supporting the development of Community Wildfire Protection Plans (CWPPs)
- Costs associated with gaining "Firewise Community" recognition

Activities that DO NOT qualify:

- Any activity funded by other state or state-administered federal funds
- Any previously-matched prevention/preparedness
- Costs of state or federally-provided trainings
- Costs of initial attack suppression of wildfires
- Costs of improving culinary water systems
- Costs to improve individual structures
- Costs of existing county employees or programs including weed departments

Rev: 10/29/2015